

WHAT IS CLAIMED IS:

- 1 1. An active matrix liquid crystal display device
2 comprising:
3 a first substrate and a second substrate, at least
4 one of the first and second substrates being transparent;
5 a liquid crystal layer put between the first and
6 second substrates;
7 a color filter,
8 said first substrate including a plurality of
9 scanning lines;
10 a plurality of signal lines crossing the scanning
11 lines in a matrix manner; *B*
12 a plurality of thin film transistors formed at
13 intersections of the scanning lines and signal lines,
14 respectively;
15 a pixel electrode connected to said plurality of thin
16 film transistors,
17 said second substrate including a counter electrode,
18 liquid crystal molecules being driven by an electric
19 field between said pixel electrode and said counter
20 electrode to thereby make display, wherein
21 said color filter is formed on a passivation film for
22 protecting said thin film transistors;
23 said pixel electrode is arranged on said color filter
24 and connected to said thin film transistors through a
25 contact hole provided in said passivation film and said

26 color filter; and
27 gate insulating layers of said thin film transistors
28 and said passivation film are removed in a light
29 transmission region within pixels surrounded by said
30 scanning lines and said signal lines.

1 2. An active matrix liquid crystal display device
2 comprising:

3 a first substrate and a second substrate, at least
4 one of the first and second substrate being transparent;
5 a liquid crystal layer put between the first and
6 second substrate;

7 a color filter;

8 an overcoat layer protecting said color filter, said
9 first substrate including a plurality of scanning lines;
10 a plurality of signal lines crossing the plurality of
11 scanning lines in a matrix manner;

12 a plurality of thin film transistors formed at
13 intersections of the scanning lines and the signal lines,
14 respectively;

15 a pixel electrode connected to said thin film
16 transistors, said second substrate including a counter
17 electrode, liquid crystal molecules being driven by an
18 electric field between said pixel electrode and said
19 counter electrode to thereby make display, wherein

20 said color filter is formed on a passivation film for
21 protecting said thin film transistors;

22 said overcoat layer is formed on said color filter;
23 said pixel electrode is arranged on said overcoat
24 layer and connected to said thin film transistors through a
25 contact hole provided in said passivation film, said color
26 filter and said overcoat layer; and

27 gate insulating layers of said thin film transistors
28 and said passivation film are removed in a light
29 transmission region within pixels surrounded by said
30 scanning lines and said signal lines.

1 3. An active matrix liquid crystal display device according
2 to claim 1 or 2,

3 wherein the color filter around said contact hole is
4 thinner than the color filter in said light transmission
5 region.

1 4. An active matrix liquid crystal display device according
2 to claim 1 or 2,

3 wherein said color filter consists of an organic film,
4 a difference in level generated on a surface of the organic
5 film being not more than 0.3 μm.

1 5. An active matrix liquid crystal display device according
2 to claim 1 or 2,

3 wherein said color filter is made of a photosensitive
4 acrylic resin having pigment dispersion property.

- 1 6. A method of manufacturing an active matrix liquid
2 crystal display device, the method comprising the steps of:
3 forming a plurality of scanning lines on a first
4 substrate;
5 forming a plurality of signal lines crossing the
6 plurality of scanning lines in a matrix manner;
7 forming a plurality of thin film transistors at
8 intersections of the plurality of scanning lines and the
9 plurality of signal lines, respectively;
10 forming a pixel electrode connected to said thin film
11 transistors;
12 forming a counter electrode on a second substrate;
13 injecting liquid crystal between said first substrate
14 and said second substrate and sealing the liquid
15 crystals,
16 wherein said method further comprising the steps of:
17 forming a passivation film to protect each of said
18 thin film transistors;
19 removing part of a gate insulating layer and said
20 passivation film of each of said thin film transistors in a
21 region surrounded by said signal lines and said scanning
22 lines;
23 forming a color filter made of a photosensitive color
24 resist; and
25 forming a transparent conductive film.
- 1 7. A method of manufacturing an active matrix liquid

2 crystal display device, the method comprising the steps of:
3 forming a plurality of scanning lines on a first
4 substrate;
5 forming a plurality of signal lines crossing the
6 plurality of scanning lines in a matrix manner;
7 forming a plurality of thin film transistors at
8 intersections of the plurality of scanning lines and the
9 plurality of signal lines, respectively;
10 forming a pixel electrode connected to said thin film
transistors;
11 forming a counter electrode on a second substrate;
12 injecting liquid crystal between said first substrate
13 and said second substrate and sealing the liquid crystals,
14 wherein said method further comprising the steps of:
15 forming a passivation film to protect each of said
16 thin film transistors;
17 removing part of a gate insulating layer and said
18 passivation film of each of said thin film transistors in a
19 region surrounded by said signal lines and said scanning
20 lines;
21 forming a color filter made of a photosensitive color
22 resist;
23 forming an overcoat layer on said color filter;
24 patterning said overcoat layer;
25 forming a contact hole by patterning said color
26 filter while using said overcoat layer as a mask; and
27 forming a transparent conductive film.

Add 1
Add 2

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